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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

EASTMAN, AARON ROBERT

ART UNIT

PAPER NUMBER

3745

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/582,694	Applicant(s) BAYER ET AL.	
	Examiner Aaron R. Eastman	Art Unit 3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/13/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: In paragraph [0021] “protrusions 28” should read --protrusions 38-- and “blades 20” should read --blades 12--.

Appropriate correction is required.

Claim Objections

2. Claims 14-24 are objected to because of the following informalities: In line 1 of each of the claims, “Claim” should read --claim--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 13, 14 and 17-19 are rejected under 35 U.S.C. 102(b) as being anticipated by USP 1,325,208 (Rice hereinafter).
5. In re claim 13 Rice discloses a rotor for a turbo engine comprising a rotor base body and a plurality of rotor blades (13) distributed over the circumference of the rotor base body, wherein the rotor base body is formed by at least one ring- shaped element (5, 6) made of a metal matrix composite material, and the rotor blades (13) are attached by footing to the rotor base body in such a way that the footing is positioned in a fiber-

free area of the rotor base body (Rice does not employ the use of fibers in its construction) (See Figure).

6. In re claim 14 Rice discloses a rotor according to claim 13, wherein the rotor base body is made of two ring-shaped elements (5, 6) each made of a metal matrix composite material (MMC material), the rotor blades (13) being attached to the radially outer end between the two ring-shaped elements (5, 6).

7. In re claim 17 Rice discloses a rotor according to claim 14, wherein the footing of the rotor blades (13) engages in a corresponding recess and/or indentation in the area of the ring-shaped elements (5, 6).

8. In re claim 18 Rice discloses a rotor according to claim 14, wherein the two ring-shaped elements (5, 6) are detachably joined together on radially inside sections (10, 12).

9. In re claim 19 Rice discloses a rotor according to claim 18, wherein the radially inside sections at which the two ring-shaped elements (5, 6) are joined together are designed to be fiber-free (Rice does not employ the use of fibers in its construction).

10. Claims 13-15 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by USP 5,263,823 (Cabaret et al. hereinafter).

11. In re claim 13 Cabaret et al. disclose a rotor for a turbo engine comprising a rotor base body and a plurality of rotor blades (5) distributed over the circumference of the rotor base body, wherein the rotor base body is formed by at least one ring-shaped element (2) made of a metal matrix composite material, and the rotor blades (5) are attached by footing (6) to the rotor base body in such a way that the footing is

positioned in a fiber-free area of the rotor base body (Cabaret et al. do not employ the use of fibers in its construction) (See Fig.'s 1-4).

12. In re claim 14 Cabaret et al. disclose a rotor according to claim 13, wherein the rotor base body is made of two ring-shaped elements (2, 13 Fig.'s 3 and 4) each made of a metal matrix composite material (MMC material), the rotor blades (5) being attached to the radially outer end between the two ring-shaped elements (2, 13).

13. In re claim 15 Cabaret et al. disclose a rotor according to claim 14, wherein the rotor blades (5) are each positioned with a platform (the platform is shown in Fig.'s 1 and 2, located between blade (5) and blade root (6)) between radially outer peripheral protrusions on the two ring-shaped elements (2, 13), the axial ends of the platforms being in contact with the peripheral protrusions (small protrusions of the two ring-shaped elements (2, 13) can be seen in Fig. 4).

14. In re claim 17 Cabaret et al. disclose a rotor according to claim 14, wherein the footing of the rotor blades (5) engages in a corresponding recess (10) and/or indentation in the area of the ring-shaped elements (2, 13).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rice in view of USP 4,743,166 (Elston, III et al.).

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17. In re claim 15 Rice discloses all of the limitations except for wherein the rotor blades (13) are each positioned with a platform between radially outer peripheral protrusions on the two ring-shaped elements (5, 6), the axial ends of the platforms being in contact with the peripheral protrusions. Rice discloses the platform of the blade being radially outward of outer peripheral protrusions on the two ring-shaped elements (5, 6). This leaves a gap through which air can flow.

18. Elston, III et al. teaches an air seal comprising the platform of a blade (36) positioned between radially outer peripheral protrusions the axial ends of the platforms being in contact with the peripheral protrusions (Fig.'s 3 and 5).

19. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Rice by positioning the platform between radially outer peripheral protrusions on the two ring-shaped elements (5, 6), the axial ends of the platforms being in contact with the peripheral protrusions as taught in Elston, III et al. for the purposes of creating a seal.

20. Claims 16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rice in view of US 4,339,229 (Rossman hereinafter).

21. In re claim 16 Rice discloses all of the limitations except for wherein the two ring-shaped elements each have at least one fiber-reinforced area, the blade footing of the rotor blades being positioned between the fiber-reinforced areas of the two ring-shaped areas.

22. Rossman teaches fiber-reinforced areas (4, 5, 5a) on either side of a blade footing (3a).

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23. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Rice by forming the two ring-shaped elements so that each have at least one fiber-reinforced area, the blade footing of the rotor blades being positioned between the fiber-reinforced areas of the two ring-shaped areas as taught in Rossman for the purposes of resisting centrifugal loads (col. 1 lines 5-10 of Rossman).

24. In re claim 21 the Rice modification in re claim 16 discloses a rotor according to claim 13, wherein the rotor base body comprises a ring-shaped element made of a metal matrix composite material (MMC material), with axially outer sections of the ring-shaped element being fiber-reinforced with a section in between being designed to be fiber-free, and with the footing of the rotor blades being secured in the fiber-free section.

25. Claims 16 and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cabaret et al. in view of Rossman.

26. In re claim 16 Cabaret et al. disclose all of the limitations except for wherein the two ring-shaped elements each have at least one fiber-reinforced area, the blade footing of the rotor blades being positioned between the fiber-reinforced areas of the two ring-shaped areas.

27. Rossman teaches fiber-reinforced areas (4, 5, 5a) on either side of a blade footing (3a).

28. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Cabaret et al. by forming the two ring-shaped elements so that each have at least one fiber-reinforced area, the blade footing

of the rotor blades being positioned between the fiber-reinforced areas of the two ring-shaped areas as taught in Rossman for the purposes of resisting centrifugal loads (col. 1 lines 5-10 of Rossman).

29. In re claim 21 the Cabaret et al. modification in re claim 16 discloses a rotor according to claim 13, wherein the rotor base body comprises a ring-shaped element made of a metal matrix composite material (MMC material), with axially outer sections of the ring-shaped element being fiber-reinforced with a section in between being designed to be fiber-free, and with the footing of the rotor blades being secured in the fiber-free section.

30. In re claim 22 the Cabaret et al. modification in re claim 16 discloses a rotor according to claim 21, wherein boreholes (4) running in the radial direction are created in the fiber-free section of the ring-shaped element (2), each rotor blade (5) being anchored in a borehole (4) with footing (6) (Fig. 2).

31. In re claim 23 the Cabaret et al. modification in re claim 16 discloses a rotor according to claim 21, wherein each rotor can be inserted into a corresponding borehole (4) from the inside end radially, beginning with an end of the rotor blade (5) that is on the outside radially, inserting the rotor blade (5) into the borehole (4) until the footing comes to rest against a stop integrated into the borehole (4) (Fig. 2).

32. In re claim 24 the Cabaret et al. modification in re claim 16 discloses a rotor according to claim 22, wherein the rotor blades (5) are secured in the boreholes (5) by a retaining ring (3), whereby the retaining ring (3) acts on the radially inside end of the boreholes (4) and presses the rotor blades (5) radially outward.

33. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rice.

34. In re claim 20 Rice discloses a rotor according to claim 18, wherein the two-ring shaped elements (5, 6) are joined together by rivet connections (12, 13) on radially inside sections. Rice does not explicitly disclose that the assembly method of the diaphragm assembly requires the screw connections as claimed. However, it would have been obvious to one having ordinary skill in the art to assemble the apparatus of Rice by forming the two-ring shaped elements (5, 6) so that they are joined together by screw connections on radially inside sections since it is one of a finite number of identifiable assembly methods which results in the Rice structure as a predictable solution with a reasonable expectation of success.

Conclusion

35. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USP's 3625634 and 4397609 disclose fibers. USP 4684325 discloses peripheral protrusions. USP's 2494658, 2988324, 5061152, 5421703, 6086327 and 6790000 all disclose a split ring. USP's 1470499, 2264877, 5332360, 5474419 and 5797725 all disclose boreholes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron R. Eastman whose telephone number is (571)270-3132. The examiner can normally be reached on Mon-Thu 9:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aaron R. Eastman/
Examiner, Art Unit 3745

/Edward K. Look/
Supervisory Patent Examiner, Art Unit 3745